Assessing the Pollution Efficiency Index Ratings of the Rust Belt Plaintiffs in the Recent Lawsuit Challenging the Clean Air Act Rollback

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Abstract:
The economic well-being of the Rust Belt geographic region of the United States is reliant on manufacturing output for the strength of their industrial sector. However, four Rust Belt states have recently challenged the rollback of the prior administration's Clean Air Act, which many pundits indicate is contrary to their economic well-being. This paper will examine that commonly held notion by assessing the pollution records and related economic output of those four plaintiffs located in the Rust Belt versus the plaintiffs located elsewhere in the US.

Keywords: *pollution efficiency index, Rust Belt, Clean Air Act, Toxic Release Inventory, manufacturing*

Introduction

Coal, a major component of the Clean Air Act, was considered to be a regional political issue specific to the Midwest-US geographic region, or Rust Belt, rather than a national issue. Despite the differences in candidate positions, it did not garner much national attention or merit much discussion during the 2016 presidential election. Nevertheless, the Rust Belt included the most battleground states, or states that either candidate could win. Four of these Rust Belt states recently joined with 18 other states to sue the current administration for rolling back the Clean Air Act. This study will assess whether this pursuit is contradictory to their economic health.

Literature Review

Since coal is plentiful and the process of burning it to create power is relatively cheap, it has been a traditional source of energy, even though it is less clean and environmentally friendly because it releases more harmful emissions than other resources such as natural gas or oil (Harder, 2015). In fact, in recent decades, it has been deemed an "environmentally destructive industry" in America due to the carbon dioxide emissions from its burning (Goodell, 2007).

The Obama administration generally used executive powers stemming from the broad national authority in the Clean Air Act as an impetus for regulating and limiting the usage of coal, and the administration increasingly advocated for more sustainable and environmentally friendly energy sources. Various factions have been vehemently opposed to this policy, particularly union leaders in the coal industry, who have rallied in opposition to the 2011 EPA regulations that limited the industry's ability to function efficiently (Lowery, 2011; O'Brien et al., 2016).The 2016 Democratic nominee for US President, Hillary Clinton, similarly adopted the Obama administration's stance regarding coal, and it was the policy of that campaign to uphold the Clean Power Plan (Banks, 2016; Parnes& Allen, 2017).The debate over coal became especially heated as it escalated during the lead-up to the US Presidential election of 2016, and the Clean Power Plan in particular drove political rhetoric during this time (DeBellis, 2015). In fact, the coal energy issue was one of the few policy issues on which each candidate's stance diverged diametrically (Kerrigan, 2018; Rushefsky, 2017).

The Rust Belt, also referred to as the Manufacturing Belt, consists of Midwest states, generally from Iowa to Pennsylvania (Lopez, 2004). The Rust Belt became an economic powerhouse in the twentieth century due to America's dependency on coal, which was "cheaply fueling the factories of the Rust Belt and lighting up homes across the country" (Davenport, 2013). It became the geographic region with the most at stake regarding the coal issue during the 2016 election.

Utilizing the Lopez (2004) construct of the Rust Belt spanning from Iowa to Pennsylvania, the seven states in the Rust Belt (Iowa, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and Wisconsin) constituted 101 of 538 total electoral votes during the 2016 Presidential election. Of these seven states, five were considered

battleground states (those other than Illinois and Indiana), or states that were within such a small margin of polling error that either candidate could win, constituting 70 of those 101 electoral votes (Schultz & Hecht, 2015; Nelson, 2018). Coal was utilized for about 50% of the electricity produced in the 13 states one pollster considered to be battleground states(O'Donoghue, 2016). Of the 17 overall states considered to be battleground states by another pollster, coal played a key role in the statewide economy of 13, whereas these states represented 149 electoral votes (America's Power, 2016). Nevertheless, by 2016, 200 coal-fired power plants in 13 battleground states had closed, with 46 others announced to be closed as a result of the new EPA regulations (O'Donoghue, 2016).

Of the five battleground Rust Belt states (Iowa, Michigan, Ohio, Pennsylvania, and Michigan), most analysts in the lead-up to the election had Trump losing in the polls in Pennsylvania, Michigan, and Wisconsin (Parnes&Parnes, 2017; Real Clear Politics, 2017; Sabato et al., 2017; Nelson, 2018). However, Trump won all of them amid unusually high voter turnout, which many linked to the coal issue. In fact, Pennsylvania and Michigan voted for the Republican candidate (Trump) for the first time since 1988 and Wisconsin for the first time since 1984. Many political scholars attribute Trump's victories in these Rust Belt states in part to his campaign promises to rollback coal regulations mandated in the Clean Power Plan (Lake et al., 2016; Segal et al., 2016; Clinton, 2017; Parnes&Parnes, 2017; Sabato et al., 2017).

In March of 2017, Trump, now President, enacted an executive order to remove environmental regulations and empower federal regulators to do away with the Clean Power Plan's restrictions on U.S. carbon emissions (Pacewicz&Mudge, 2017), mandating that the EPA "suspend, revise, or rescind four actions related to the Clean Power Plan", including reversals on stringent coal policies (WhiteHouse.gov, 2017).Soon, the Affordable Clean Energy act replaced the Clean Power Plan.

Later in 2017, the state of Maryland threatened to sue the EPA under the Cross-State Air Pollution Rule due to coal-affected air moving through it from states in the Midwest, claiming that the coal-using power plants in the Midwest did not do enough to limit their emissions (Walton, 2017).By 2019, 22 states joined together to sue in federal court to block Trump-era coal emission regulations. Four of the states in this coalition- Illinois, Michigan, Pennsylvania, and Wisconsin-are in the Rust Belt.

This study will analyze whether the political and legal strategy of these four states in joining with the others is contradictory to their economic health by examining the pollution and related economic output of those four plaintiffs located in the Rust Belt versus the plaintiffs located elsewhere in the US.

Methodology& Results

Components of assessment of the economic health as it relates to pollution records include the output of their manufacturers (the culprits of pollution) as well as the total amount of pollution. Variables used to measure manufacturing output include the state's contribution to gross national product (GNP) connected to industrial production such as percentage of workforce working in industry, as well as total dollar figures of GNP related to manufacturing. Variables used to measure pollution include rankings of total pollution compared to all states, as well as total annual pollution.

In order to obtain a comparable method for assessing pollution as it relates to related output, or a *pollution efficiency index*, variables for both pollution and productivity must be included. As such, the total on-site and off-site disposal or releases of chemicals (total pollution) was used from the US Environmental Protection Agency's(EPA) Toxic Release Inventory (TRI) from the most recent year (2018). The composite pollution rates were extracted from the TRI, a publicly-available EPA database containing information on the release of toxic chemicals into the atmosphere (Antisdel, 2017) and the waste management concentration activities reported annually by all private organizations as well as federal facilities (EPA, 2020).In addition, the TRI included the rank by state of total releases by square mile (of 56 states and territories) with 1 = highest releases, with a higher number meaning that there is less pollution per mile in that state.

In order to assess economic data specific to industrial output, data from the National Association of Manufacturers, a notable national industrial association, were used to ascertain GNP economic output specifically related to the manufacturing process, as well as percentage of workforce by state employed in manufacturing (National Association of Manufacturers, 2020). The data utilized to ascertain each states' pollution efficiency index is seen in the table below, with the red font depicting the Rust Belt states.

Table 1.

List of Suing States and Their Pollution and Manufacturing Statistics

States Suing	Rank: Total releases per square mile (of 56 states and territories	Total On-site and Off-site Disposal or Other Releases(pollution): (millionsof lbs)	GNP Related to Manufacturing (in billions)	Workforce Employed in Manufacturing (%)
1) Illinois	8	109.7	108.43	9.61
2) Michigan	26	71	102.35	14.24
3) Pennsylvania	15	52.2	93.75	9.47
4) Wisconsin	29	33.2	63.31	15.99
5) California	49	29	316.76	7.72
6) Colorado	40	31.9	25.15	5.41
7) Connecticut	37	1.9	30.78	9.49
8) Delaware	6	5	4.70	5.86
9) Hawaii	43	3	1.87	2.16
10) Maine	39	11.9	6.31	8.27
11) Maryland	32	5.4	24.32	3.94
12) Massachusetts	38	3.5	53.26	6.7
13) Minnesota	42	24.6	52.65	10.88
14) New Jersey	11	12.1	52.70	5.95
15) New Mexico	50	17.8	4.05	3.21
16) New York	36	21.6	74.58	4.58
17) North Carolina	17	52.3	103.59	10.56
18) Oregon	48	18.8	34.8	10.21
19) Rhode Island	41	.439	5.31	8.13
20) Vermont	53	.466	3.19	9.46
21) Virginia	21	35.3	47.76	6
22) Washington	31	32	63.13	8.45

Rank and Total On-site and Off-site Disposal or Other Releases found at: https://www.epa.gov/toxics-release-inventory-tri-program

GNP related to manufacturing was utilized as the numerator andpollution was utilized as the denominator in order to calculate the pollution efficiency index for all states. The larger the pollution efficiency rate, the better, because if manufacturing-related GNP goes up or pollution goes down, the pollution efficiency index goes up.   The table below shows the pollution efficiency index of all 22 states in the lawsuit, with the red font depicting the four Rust Belt states.

Table 2.
List of Suing States in Order of Pollution Efficiency Index

State	Pollution efficiency index
1) Connecticut	(best) 16.2
2) Massachusetts	15.22
3) Rhode Island	12.1
4) California	10.92
5) Vermont	6.85
6) Maryland	4.5
7) New Jersey	4.36
8) New York	3.45
9) Minnesota	2.14
10) North Carolina	1.98
1) Washington	1.97
12) Wisconsin	1.91
13) Oregon	1.85
14) Pennsylvania	1.8
15) Michigan	1.44
16) Virginia	1.35
17) Illinois	0.99
18) Delaware	0.94
19) Colorado	0.79
20) Hawaii	0.62
21) Maine	0.53
22) New Mexico	0.23

The pollution efficiency index was greatest (best) in Connecticut, followed by Massachusetts and Rhode Island (all states in New England). The states with the worst (lowest) pollution efficiency indexes (below 1), starting with the worst, were New Mexico, Maine, Hawaii, and Colorado, and Delaware.

The average pollution efficiency index for all 22 plaintiffs was 4.19. For the four Rust Belt plaintiffs, it was 1.53, and for the 18 remaining plaintiffs it was 4.78. Clearly, the four Rust Belt plaintiffs are major culprits when it comes to efficient polluting during the manufacturing process, although their average GNP-related to manufacturing was $91.96 billion, which dwarfed the $50.27 billion average for the other 18 states. This is not surprising considering the Rust Belt still manufactures more than other geographic regions of the country and relies heavily on production for economic health. Furthermore, the average workforce employed in manufacturing was 9.95% for the four Rust Belt states versus 7.05% for the other 18 states, further illustrating the importance of industry for the economic viability.

It's not in the economic interests of those four Rust Belt states in the lawsuit to hinder the manufacturing sector of their economies by joining this coalition. While it may be in the environmental interests and potentially the political interests of the entire country, the Rust Belt states in this lawsuit should consider their own economic landscape before entering into these legal challenges.

References

[1] Antisdel, T. (2017). Specialist/Database Administrator for the United States EPA; personal communication.

[2] Banks, G. (2016, September 13). Why a Price on Carbon Is Unlikely in the U.S. Anytime Soon.Wall St. Journal, business/energy section.

[3] Clinton, H.(2017). What Happened. London, U.K.: Simon et Schuster Ltd.

[4] Davenport, C. (2013, June 27).The Coal Lobby's Fight for Survival. National Journal. Retrievedfrom: https://www.nationaljournal.com/s/51314

[5] DeBellis, E. (2015). In Defense of the Clean Power Plan. Ecology Law Quarterly, 42(2), 235-261.

[6] Goodell, J. (2007).Big Coal: The Dirty Secret Behind Americas Energy Future. Boston, MA: Mariner Books, Houghton Mifflin Co.

[7] Kerrigan, H. (2017). Historic Documents of 2017-Current Events that Chronicle the Year: Introductory essays that build understanding primary sources that aid research. Thousand Oaks, CA: CQ Press.

[8] Lake, T., Enda, J., Tapper, J., & Brinkley, D. (2016). Unprecedented: The Election that changedeverything. New York, NY: CNN, Melcher Media.

[9] Lopez, S. (2004, April 5). Reorganizing the Rust Belt: An inside study of the American labor movement. Berkeley, CA: University of California Press.

[10] Lowery, D. (2011). Fitch Sees Rust Belt States Facing Most Coal-fired Plant Retirements. Arlington, United Kingdom: SNL Financial LLC.

[11] National Association of Manufacturers. (2020). Data and Research, State Manufacturing Data. Retrieved from: https://www.nam.org/state-manufacturing-data/

[12] Nelson, M. (2018, March 5). The Elections of 2016. Washington, DC: CQ Press.

[13] O'Brien, K., Dovere, E., Johnson, T., & Glasser, S. (2016, June 24). These Rust Belt Democrats Could Hand Donald Trump the White House. Politico.

[14] O'Donoghue, A. (2016, August 01). How Coal, Energy Could Tip the Scales for Presidential Candidates in Battleground States. Deseret News: Salt Lake City.

[15] Pacewicz, J., &Mudge, S. (2017, April 04). Analysis: Here's the Real Rust Belt Jobs Problem and It's Not Offshoring or Automation. The Washington Post, monkey cage analysis.

[16] Parnes, A., & Allen, J. (2017). Shattered: Inside Hillary Clinton's doomed campaign. New York, NY: Crown.

[17] RealClearPolitics - 2017 Election, 2016 Presidential Polls. Retrieved November 27, 2017 from: https://www.realclearpolitics.com/epolls/latest_polls/president/

[18] Rushefsky, M. (2017). Public Policy in the United States: Challenges, opportunities, andchanges. London, UK: Routledge Publishing.

[19] Sabato, L., Kondik, K., &Skelley, G. (2017).Trumped: The 2016 Election that Broke All theRules. Lanham, MD: Rowman & Littlefield.

[20] Schultz, D., & Hecht, H. (2015).Presidential Swing States: Why only ten matter. Lanham, MD: Lexington Books.

[21] Segal, S., Maisano, F., &Zelermyer, S. (2016, November 11). Post-Election Update, 2016: Environment. Retrieved from: http://www.bracewelllaw.com/news publications/updates/post-election-update-2016

[22] Walton, R. (2017, July 25). Maryland Threatens to Sue EPA Over Cross-state Air Pollution Rule. Retrieved from: http://www.utilitydive.com/news/maryland-threatens-to-sue-epa-over-cross-state-air-pollution-rule/447791/

[23] Whitehouse.Gov. (2017, March 18). President Trump's Energy Independence Policy.Retrieved from: https://www.whitehouse.gov/the-press-office/2017/03/28/president-trumps-energy-independence-policy.